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December 1, 2015

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Mr. Richard Hyde, Executive Director
Texas Commission on Environmental Quality
Post Office Box 13087
Austin, Texas 78711-3087

Re: Exide Frisco Recycling Facility; Conceptual Remedial Action Plan;
City of Frisco Comments

This submittal is the City of Frisco's response to the above referenced document (Conceptual RAP) which was filed with TCEQ on October 30, 2015. Prior to the filing, Exide assured the City that this Conceptual RAP was simply a placeholder being filed to meet regulatory deadlines and would be replaced by the "real" RAP at a later date. Exide also assured the City the real RAP would include the City's proposed slurry wall and cap to contain hazardous waste within the FOP area. However, there is nothing in the Conceptual RAP that would indicate to TCEQ, or the City, Exide's intent to do either. Since the Conceptual RAP generally ignores TCEQ's comments and directives contained in the agency's May 5, 2015 comments on the FOP APAR (attached hereto as Attachment A; including EPA's September 12, 2013 rejection cover letter), the City assumes the final RAP will be significantly different from this Conceptual RAP. The City notes that Exide and the City remain in negotiations regarding an amended Master Settlement Agreement that would include the City's proposed Slurry wall and cap.

The Conceptual RAP relies on Exide's previous assertion that there is no impacted groundwater at the FOP site and, therefore, little remediation and limited long term care is required. It also appears to assume that an AOC, rather than a CAMU, is an adequate regulatory mechanism to address the extensive hazardous waste contamination at the FOP site. There is no valid technical or legal basis for either position. Regardless, the City will again address both issues in this submittal.

On a positive note, the Conceptual RAP does agree with TCEQ and the City that the Exide related contamination of the Stewart Creek area must be completely remediated to an ecologically safe level. The Conceptual RAP also includes residential standard Pb, Cd, and As cleanup levels that TCEQ has determined are required for the FOP area. Exide is well aware that the City intends to promote redevelopment of the FOP site with uses such as a golf course and/or ball fields. Such uses are in keeping with TCEQ's and USEPA's hazardous waste disposal site redevelopment strategies. Such uses will require residential standard cleanup levels along with long term institutional controls. Such uses will also require deed recordation to protect the integrity of the hazardous waste containment systems.

Groundwater

Exide previously tried to convince TCEQ that the contaminated groundwater identified at the FOP site is merely “perched” water and there is no interconnected groundwater regime present. The City effectively disproved this claim with its July 18, 2014 submittal. Relevant portions of that submittal are attached as Attachment B. After reviewing available data and the City’s groundwater submittal, TCEQ, in its May 5, 2015 comments, rejected Exide’s claim and ordered Exide to address protection of the entire groundwater regime present at the FOP site. This is especially important because the shallow groundwater that flows under the FOP site picks up Pb, Cd, and As contamination as it migrates into Stewart Creek. As explained in detail below, this transport mechanism is the reason for the City’s proposed slurry wall completely around the contaminated area of the site.

The “perched” water and the uppermost groundwater bearing unit (GWBU) are interconnected. Therefore, by regulatory definition, they are considered a single GWBU. Contamination of any part of the FOP site GWBU must be addressed as contamination of the entire GWBU to assure complete containment/removal of the contamination.

While the current French Drain is recovering contaminated groundwater, it cannot, because of its shallow depth, prevent future discharges of contaminated groundwater to Stewart Creek. Currently identified contaminated groundwater is present at a lower elevation than the base of the French Drain. This allows contaminated groundwater to flow under the French Drain and floodwall into Stewart Creek. This flow was documented by USEPA during its 2010 Corrective Action Inspection. Stewart Creek sediment contamination in this area confirms such flow under the French Drain. In addition, the French Drain was not designed or constructed to capture contaminated groundwater from the entire FOP site. For example, documented hazardous waste contamination underlies the Battery Receiving Building and groundwater from this portion of the FOP is not intercepted by the French Drain. The Conceptual RAP’s reliance on the French Drain to control future contamination of Stewart Creek is fatally flawed and certainly does not adequately respond to TCEQ’s May 5, 2015 comments.

Slurry wall

The City believes a slurry wall surrounding the FOP area, in conjunction with an appropriate cap, is the best FOP hazardous waste containment system to assure the long term protection of Stewart Creek. Such a slurry wall system will limit groundwater from passing through the unlined North Disposal Area (NDA), the Slag Landfill, and the former plant site. The slurry wall system should, if properly maintained and monitored, prevent Pb, Cd, and As contamination from moving into Stewart Creek in the future. The City is not aware of any other containment mechanism that will adequately perform this function. Any such slurry wall system must be keyed into the underlying shale (bedrock) to prevent under cutting during periods of high groundwater flow.

While Exide has previously indicated that it will agree to such a system, the Conceptual RAP makes no mention of it. In fact, the Conceptual RAP is based on the assumption that there is no such groundwater flow regime. The Conceptual RAP again attempts to establish the shallow intermittent

clay layer found in some parts of the FOP site as an aquitard. As the City previously demonstrated in its groundwater submittal this is simply not true.

In developing its slurry wall conceptual design the City reviewed agency and industry literature. All regulatory and industry guidance the City has been able to locate indicates that a slurry wall in this situation should be keyed into the bedrock/shale. For example, ASTM STP1129 indicates a containment slurry wall should be keyed at least one foot into bedrock if feasible. Various USEPA guidance documents also indicate that a bedrock/shale key is the preferred mechanism. An internet search of industry guidance, based on actual slurry wall installations, also supports this conclusion. Only where the bedrock/shale is too deep would a clay key mechanism be considered.

The underlying bedrock/shale at the FOP site is relatively shallow. The chart included herein as Attachment C was developed from past borings at the site and supports that conclusion. Those borings also conclusively demonstrated that a slurry wall cannot be keyed into the shallow intermittent clay layer at the site.

A partial list of containment slurry walls previously approved by TCEQ, most of which are keyed into the underlying bedrock/shale, includes:

- City of Denton Landfill (MSW 1590A)
- DFW Landfill (MSW 1025B) [similar to Exide/Stewart Creek situation]
- City of Irving Landfill (MSW 1394)
- City of Arlington (MSW 358B) [slurry wall proposed]
- City of Farmers Branch Landfill (MSW 1312A) [slurry wall proposed; appears similar to Exide/Stewart Creek situation]
- Coastal Plains Landfill (MSW 1721A) [partial failure due to clay key]

Regulatory guidance, industry literature, and past TCEQ practice supports approval of the City's proposed slurry wall hazardous waste containment system at the FOP site. There is no such support for Exide's long term hazardous waste containment proposals in the Conceptual RAP.

Corrective Action Management Unit Designation

The CAMU issue was addressed at length in the TCEQ's May 5, 2015 comments on the FOP APAR. The FOP site contains RCRA permitted units. It also contains non-permitted areas of previous uncontained hazardous waste disposal. The RCRA permitted units have extensive regulatory closure requirements to protect public health and the environment. The non-permitted hazardous waste disposal areas require significant remedial actions for future containment. Both areas require long term care with adequate financial assurance. These are not simply areas of concern. The City does not believe the AOC regulatory closure mechanism apparently assumed by Exide is allowed by the applicable RCRA closure regulations and is certainly not adequate to assure public health and the environment are protected. Unfortunately, the Conceptual RAP appears to be entirely based on use of the AOC concept.

As TCEQ made clear in its May 5, 2015 comments, a CAMU designation provides an acceptable regulatory mechanism to address remedial and long term care requirements at the FOP

site. In particular, the CAMU designation requires adequate financial assurance to protect public health and the environment now and in the future. An AOC does not include such financial assurance. Given Exide's past history of repeated bankruptcy filings, the Frisco site absolutely requires adequate financial assurance controlled by TCEQ.

CAMUs have requirements for liners and leachate collections systems similar to municipal solid waste landfills. Given the extent of the residual contamination at the FOP site, and the fact that it is not lined and has groundwater moving through it, any proposed closure design must incorporate a contaminate control system similar to a liner and leachate collection system. The City's proposed slurry wall and cap is such a contaminant containment system. Exide does not propose any similar system in the Conceptual RAP.

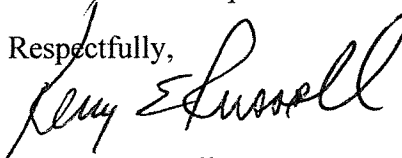
Since a CAMU has no restriction on ex-situ treatment, sediment from the Stewart Creek Remediation Area could be dewatered ("treated") and then disposed of on at the FOP site rather than being disposed in an off-site landfill. An AOC does not contemplate such treatment and disposal.

A CAMU provides more opportunities for public involvement in the regulatory closure process than an AOC. This factor is important to the City and TCEQ.

In conclusion, the City is not willing to support the least effective remedy, which is what Exide's Conceptual RAP proposes. The City and the public are insisting on the most effective remedy; which is a complete slurry wall around the FOP site and an enhanced cap over it along with appropriate remediation of other FOR areas and Stewart Creek. Long term groundwater monitoring and adequate financial assurance are critical components of the final RAP.

While the Conceptual RAP does not need to be rejected in its entirety, it does need major revisions to meet applicable regulatory requirements. If the Conceptual RAP is simply a regulatory placeholder, then the City hopes, and TCEQ should require, that the final RAP fully protect public health and the environment while allowing beneficial redevelopment of the FOP site.

Respectfully,



Kerry E. Russell
Special Counsel
City of Frisco

Cc: ✓ Mr. George Purefoy
Mr. Mack Borchardt
Mr. Richard Abernathy
Mr. Gary Beyer
Mr. Bill Shafford
Mr. Matt Love
Ms. Aileen Hooks

Bryan W. Shaw, Ph.D., P.E., *Chairman*
Toby Baker, *Commissioner*
Zak Covar, *Commissioner*
Richard A. Hyde, P.E., *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

May 5, 2015

CERTIFIED MAIL

91 7199 9991 7033 2770 2045

Mr. Matt Love, Director
Global Environmental Remediation
Exide Technologies
P.O. Box 14294
Reading, PA 19612-4294

Re: Comments to the Affected Property Assessment Report (APAR) for the Former Operating Plant, dated May 22, 2014
Exide Frisco Recycling Facility, 7471 5th St. Frisco, TX 75034-5047
TCEQ SWR No. 30516, TCEQ Hazardous Waste Permit No. HW-50206; TCEQ Agreed Order Docket No. 2011-1712-IHW-E ; EPA ID No. TXD006451090; Customer No. CN600129779; Regulated Entity No. RN100218643

Dear Mr. Love:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above referenced submittal. Based on our review, since a complete delineation of the extent of contamination at some solid waste management units on-site and on downstream portions of Stewart Creek, the TCEQ that cannot concur that the investigation has been completed in accordance with 30 Texas Administrative Code (TAC) §350.51. The full extent of contamination has not been determined on-site. Regarding off-site Stewart Creek investigations, a report entitled *Interim Action Report Slag and Battery Case Fragment Removal and Disposal*, dated August 2014 detailing interim removal actions for slag and battery chips and levels of contamination in soils and sediments in Stewart Creek was received subsequent to the APAR and will be reviewed separately. A list of comments to the APAR is enclosed. TCEQ also took into account the August 29, 2014, City of Frisco's comments. Please prepare a written response to each comment, referencing the assigned TCEQ comment number. An original and one copy of the written response to these comments must be submitted to the TCEQ Remediation Division at the letterhead address using mail code number MC-127. An additional copy should be submitted to the TCEQ Region 4 Office in Dallas/Ft. Worth. *Your response must be received within 60 days from the date of this letter.* Please note that the Remediation Division sends letters via email when appropriate. Therefore, current email addresses and the site identification information in the reference block should be included in all future submittals.

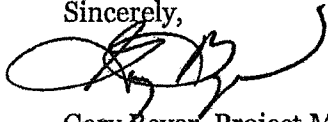
Even though it is acknowledged that delineation is not 100% complete in all areas of the Site for all metals, based on the amount of information collected for the site to date, there is sufficient data to prepare a conceptual RAP for the on-site portion of the facility which discusses and

Mr. Love
Page 2
May 5, 2015
SWR No. 30516

evaluates potential remedial alternatives to address all contaminated media. A Response Action Plan (RAP) is required to be submitted in accordance with 30 TAC §350.94 for review and approval. Please submit a RAP within 120 days of the date of this letter. Along with the RAP, please submit a supplement to this APAR within 120 days of this letter which fully describes the vertical and lateral extent of contamination in those areas which have not been fully delineated, some of which are denoted as Possible Affected Properties on Figure 1.B.1., others discussed in the narratives regarding individual units.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance with the Final Report. Please call me at (512) 239-2361 if you need additional information or wish to discuss these comments or the due date.

Sincerely,



Gary Beyer, Project Manager
Team 1, VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

GB/mdh

Enclosure

cc: Mr. James Gradney, Enforcement Coordinator, TCEQ Office of Compliance and Enforcement, MC-224
Mr. Sam Barrett, Waste Manager, TCEQ Region 4 Office, Dallas/Ft. Worth
Mr. Bill Shafford, Technical Specialist, Office of Waste, TCEQ

Comments to the Affected Property Assessment Report for the Former Operating Plant

1. Page xviii, Conclusions and Recommendations – In the Groundwater section, it states, “This recommendation includes **annual** monitoring of groundwater in the vicinity of the Class 2 Landfill in accordance with the previously submitted Class 2 Landfill Groundwater Monitoring Plan (PBW, 2013a) which was approved on April 4, 2014. It should be noted that quarterly monitoring is required by the plan for a short list of constituents of concern (COCs) with reports submitted semiannually. A larger list of COCs is required by the plan for annual sampling.
2. Section 1.2.5 – Affected Property Description, Page 1-30 - Regarding the argument that “...in almost all cases, wherever one of these metals (arsenic, antimony and selenium) was present in exceedance of the RALs, lead was also present in exceedance of the RAL at the same location.” The two exceptions were for antimony located in the shooting range/south berm area and areas of isolated arsenic contamination. Regarding antimony located in the shooting range/south berm area, antimony is used in the manufacture of lead bullets to increase hardness as well as being used in battery production and is therefore not considered anomalous.

There are several explanations for the isolated occurrences of arsenic. Since arsenic is more mobile in the relatively alkaline conditions found in soils surrounding Exide, whereas lead is less mobile in alkaline soil conditions arsenic may have preferentially leached from areas where it originally coexisted with lead contamination. Also, arsenic contamination has probably been derived from stack emissions (as noted during the remediation of the Exide Vernon, CA facility) and was aerially deposited onto soils. Arsenic could also be the result of cotton farming, or some combination of all the above. Regardless, since arsenic from these various sources cannot be differentiated, isolated occurrences of arsenic must be carried forward as a COC and any areas above the critical PCLs or background must be remediated.

3. Section 2.5 – Groundwater Resource Classification, Page 2-4– The TCEQ accepts that the classification of groundwater at the site is Class 2 since evidence demonstrating a change to Class 3 was not presented in the APAR.
4. Section 3.2.3-Flood Wall, Structural Sub-base and Perched Water Assessment Strategy, Page 3-12 thru 14- In this section, documentation is provided to describe the existence of a perched water zone and that any contamination in water derived from this zone does not represent contaminated groundwater from the Upper Ground Water Bearing Unit (Upper GWBU). We agree that the proposed perched zone represents a preferred permeability pathway, but may not be hydraulically isolated from the GWBU in all areas of the site. Therefore, the TCEQ considers the proposed perched zone to be part of the overall Upper GWBU. Even if it could be demonstrated that the perched zone is hydraulically separated from the Upper GWBU, the water in the proposed perched zone is contaminated and has been demonstrated to release contaminants to Stewart Creek. This contaminated water represents a completed exposure pathway and is subject to corrective action to prevent continued releases to Stewart Creek.

This section also discusses various problems encountered with the operation and maintenance of the French Drain System. Please provide us with a copy of the French Drain Operation and Maintenance Plan described in this section. As previously requested as Comment 34 in our October 8, 2013 letter, information should be presented on the

performance of the system, gallons of water intercepted, concentrations of contaminants in the water, the presence and/or absence leakage along the flood wall and into Stewart Creek, the presence or absence of white crystalline substance and sample results, and a **determination as to whether ongoing discharges to Stewart Creek are continuing to occur.** This information was not presented in the May 2014 APAR. We will require quarterly reports on the operation of the French Drain system since it is critical to prevent ongoing releases of contaminated groundwater to Stewart Creek. **Please provide the first of these reports which evaluate the performance of this interim corrective measure within 90 days of the date of this letter.** Please provide the information requested in our October 8, 2013 letter. Information provided in these reports is necessary for the development of the requested RAP to insure that any continuing releases to surface water will be eliminated. Evaluations of various corrective actions (slurry walls, capping, expansion of the French drain system, etc.) should be presented in the requested RAP.

Please be aware that it is the continuing obligation of persons associated with a site to ensure that municipal hazardous waste and industrial solid waste are managed, including any waste managed in the French Drain, super sacks or other waste piles, in a manner which does not cause the discharge or imminent threat of discharge of waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4. If the actual response action fails to comply with these requirements, please take any necessary and authorized action to correct such conditions. A TCEQ field inspector may conduct an inspection of your site to determine compliance.

5. Section 3.2.7.3, Use of Slag as Fill Material, Page 3-22– While we agree that fill containing slag was deposited at depth prior to RCRA regulation (July 26, 1982), shallow contamination exists at many sites which was deposited during recycling activities after the RCRA rules were enacted. Also, any contaminated slag and soil which was removed and re-deposited on-site after RCRA rules were implemented would be considered RCRA hazardous. This relatively shallow contamination would have to be removed from the site in order for the cleanup to proceed under 30 TAC §335.167, Corrective Action for Solid Waste Management Units, unless remediation incorporating this area according to EPA guidance document EPA530-F-98-026, Management of Remediation Waste Under RCRA, is approved (i.e. Corrective Action Management Unit (CAMU), etc.) Also, the thickness of fill material as depicted in Figure 3A does not incorporate the presence of fill containing slag documented in MW-30 at an approximate depth of 29 feet.
6. Section 3.2.8.1. and Sections 4.2.6 thru 4.2.9, Page 3-24– All four caps at the Class 2 Landfill, Slag Landfill, South Disposal Area, and North Disposal appear to be in fair condition, except for some minor ponding in the Slag Landfill as noted on page 4-21 and North Disposal Area as documented in Photo 4 of Exhibit B of Appendix 11. Provide plans in the requested RAP for removal and proper disposal of surface contamination located on top of the caps. As part of the requested RAP, please provide plans for upgrading the existing caps to provide adequate drainage and prevent vertical migration of rain water into the underlying waste. As noted in the previous comment, any contamination existing on top of the caps must be removed or incorporated into a CAMU.

7. Section 4.2, Nature and Extent of COCs and NAPL in Soil, Page 4-2– In the second bullet at the bottom of the page, the concentrations for arsenic in soil in several locations exceeded the RAL (15.9 mg/kg). These exceedances are explained as being “within the expected range of background concentrations for agricultural use based on published documents (Bureau of Economic Geology, 2005).” The TCEQ prefers to rely on site specific background studies to determine both naturally and anthropogenic background levels. While it is probable that cotton farming was conducted in the area and some of the arsenic present is due to the use of arsenic for herbicides and pesticides (calcium arsenate, sodium arsenite, and arsenic acid), it is also true that arsenic was generated by industrial activities conducted at the FOP. This arsenic generated by the industrial activities (stack emissions, slag leaching, etc.) has been deposited onto soils, adding to any pre-existing agriculturally sourced arsenic, contributing to the overall toxicity values. Since the land downstream from the FOP is anticipated for use as parkland and presumably fishing and contact recreation, any arsenic exceeding critical human health and ecological PCLs must be addressed by some form of corrective action.
8. Section 4.2.2 – Raw Materials Storage Building, Page 4-7– See the discussion presented above regarding the necessity of remediation of the perched water zone.
9. Section 4.2.3 – Slag Treatment Building, Page 4-8– The RAL for benzene was exceeded in sample 2013-STB-6. Please determine the full extent of benzene contamination at this location.
10. Section 4.2.3 – Slag Treatment Building, Page 4-9– A discussion is presented regarding the timing of the deposition of the subsurface slag in fill at depth. We agree that the fill at depth can be considered to be pre-RCRA (July 26, 1982). However, shallow contamination documented in soils in the FOP area resulting from recycling/smeltering activities since 1982 would be considered to be in violation of RCRA (see comment above regarding Use of Slag as Fill Material). In this section it states that the vertical delineation of lead in this area (Slag Treatment Building) was completed to the RAL at a depth of 4 feet. However, just east of the Slag Treatment Building, boring 2013-FWFS-5B had a lead level of 10,200 mg/kg at 5-6 ft below ground surface (bgs). Please determine the vertical extent of contamination in this area.
11. Section 4.2.4.2 – Flood Wall Creek Side, Page 4-11 - In our letter entitled Conditional Approval of Response to TCEQ and EPA Comments on Affected Property Assessment Report, dated November 19, 2013, we refer you to Comment No. 6 regarding Specific Comment No. 15, Stewart Creek Floodwall, the TCEQ stated “Concerning the white crystalline substance, please include these areas as part of a PCLE zone to be carried forward for corrective action.” The Log of Borings No. 2012 –FWCS-5, 6, and 7 taken from a depth of 0-2 feet documents the presence of a white crystalline substance on the surface of the borings, but the sample was probably homogenized, diluting the concentration of the white crystalline substance in the original APAR. Only two additional samples (SCC-6 and 2013-FWFS-5A) were taken in 2013 to document the continued existence or level in the white crystalline substance in this area, which was excluded from the PCLE zone as an area not needing remediation. This is the area originally documented as having a release by the EPA during their original inspection. Additional samples will be required in the Flood Wall Creek Side area, focusing on determining (1. The existence of the white crystalline substance and level of contamination of the undiluted substance in or near the original documentation (2012 –FWCS-5, 6, and 7) and any new areas where the white crystalline substance is

- present, and; (2. undiluted soil samples from a shallow depth (0-6 inches) and level of contamination in that soil, and (3. Any other evidence of continued discharges to Stewart Creek.
12. Section 4.2.6 – North Disposal Area, Page 4-17 – There does not appear to be many samples to determine the configuration of the North Disposal Area boundary between 2012-NDA-4 and 2012-NDA-6 and in the area surrounding ECO-11. Please install more borings to more accurately define this boundary.
 13. Section 4.2.9 – Class II Landfill, Page 4-22 – Please install an additional boring to the west of boring 2014-CL2-06A to determine the extent of contamination at the western boundary of Affected Property No. 5.
 14. Section 4.2.15 – Potential Ecological Habitat Areas, Page 4-33 – Vertical and lateral delineation of metals in the vicinity of EC-11C should be conducted. The area around EC-11C should probably be considered a separate area and not part of Affected Property No. 1. Arsenic was not delineated as part of Affected Property No. 1. Please include a complete delineation of arsenic as part of Affected Property No. 1.
 15. Section 4.2.12 – South Disposal Areas, Pages 4-27 thru 30 – Please determine the full vertical and horizontal extent of contamination in this area. Please address any surface contamination existing on the top of the soil cap in the RAP as well as any modifications required to the cap construction and configuration.
 16. Section 4.2.13 – Crystallization Unit Frac Tank, Page 4-31 – This unit is currently considered an active unit. Exide proposes to conduct further investigation of the unit during closure and demolition. Samples adjacent to the Crystallization Unit do not appear to be problematic, but the deepest samples are 2 feet and sampled primarily for cadmium and lead. We agree that a more extensive investigation will be needed during decommissioning and closure. The area known as Crystallizer Way requires additional vertical delineation in the vicinity of soil sample 2014-SDA-16. Please provide a discussion of the potential sources of contamination in this area.
 17. Section 5.1 - Derivation of Assessment Levels, Page 5-2 - The third paragraph describes monitoring wells exhibiting exceedances of the lead ^{SW}SW PCL as including MW-46 and MW-14. Consulting Tables 5B.1 and 5B.4A, these exceedances are not verified for MW-14. This paragraph also describes exceedances of the cadmium SW REBEL in MW-26, MW-27, MW-29, and MW-46. Consulting Tables 5B.1 and 5B.4A, these exceedances are not verified for MW-26, MW-27, and MW-29. Please clarify.
 18. Section 5.2 – Nature and Extent of COCs in Groundwater, Page 5-4 – Regarding the presence of selenium in monitoring well LMW-9, the argument is made for the existence of selenium in groundwater sourcing from naturally occurring selenium in soils. No background level for selenium in soils was presented in the original July 19, 2013 APAR. A survey of soil samples near the Class 2 Landfill indicates that the soil samples gathered in the area surrounding the Class 2 Landfill (2013-C2L-01 thru 10 series) are relatively low in selenium (non-detect or J-flagged) unless co-located with soils having elevated lead levels, indicating that the selenium in groundwater from this area is derived from contamination, not naturally occurring. A background level for selenium in groundwater adjacent to the Class 2 Landfill has not been established. Either a background level for selenium in groundwater must be established which indicates that the elevated levels of selenium noted in groundwater from monitoring well LMW-9 are naturally occurring, or the selenium must be

treated as groundwater contamination subject to corrective action (plume management zone, etc.).

19. Section 5.2 - Nature and Extent of COCs in Groundwater, Page 5-5 thru 5-7 – As previously discussed above, regardless whether the fill zone is considered hydraulically connected to the underlying GWBU, it represents a completed exposure pathway and additional information provided in the requested reports documenting the performance of the French Drain can be used to evaluate the efficiency of the system in capturing all the contaminated water residing in the ephemerally saturated perched zone. It is important for the development of the RAP in regards to eliminating this exposure pathway to have gathered enough information to determine an appropriate and effective corrective action response (French drain, cap, slurry wall, etc.).
20. Section 6.3 – Nature and Extent of COCs in Surface Water, Page 6-3 - Elevated concentrations of sulfate in Stewart Creek surface water (123 mg/L and 127 mg/L) above the maximum annual average criterion of 60 mg/L (Lake Lewisville) have been attributed (by Exide) to naturally occurring concentrations in the Eagle Ford Shale that outcrops at the base of the creek in the area of the site (Section 6.3). Also, historical maximum sulfate concentrations were detected at 320 mg/L, 95 mg/L, and 180 mg/L in other nearby streams. Were these sulfate concentrations measured in the other non-Stewart Creek stream segments maximum annual average concentrations, or maximum concentrations?
21. Section 6.4 – Critical PCL for Surface Water, Page 6-3, – The first sentence incorrectly states “The ecological PCLs derived for all surface water COCs (i.e., lead, arsenic, and cadmium) were lower than the human health PCLs for those COCs (see Tables 6B. 1 and 6B.2), and are therefore the critical PCLs.” An examination of Table 6B.2 reveals that the Human Health Contact Recreation PCL for arsenic, namely 0.0285 mg/l, is the critical PCL.
22. Section 7.2 – Sediment Risk Based Exposure Levels, Page 7-2– The last statement on this page reads “The concentrations of arsenic identified in the sediment sampling are within a reasonable range of the published background information. Consequently, arsenic is not considered to be related to activities at the FOP, and arsenic detections are not discussed in the following sections.” See our response to Comments 2 and 6 above. The most downstream sample (2014-SED-050) demonstrated an arsenic concentration of 29.6 mg/kg, greater than the TRRP Critical PCL (TRRP Ecological PCL for sediment, midpoint of benchmark and SEL) of 21.4 mg/kg. Please determine the lateral extent of arsenic contamination downstream from sample 2014-SED-050.

SLERA Comments

1. The SLERA focused on Stewart Creek and the North tributary. It included evaluations of chemicals of concern (COCs) in surface water, sediment, and groundwater and exposures to benthic invertebrates, aquatic life, fish, and wildlife. It also included an evaluation of the potential presence of protected species. The TCEQ concurs with the conclusions that there is likely no adverse risk to aquatic life, fish, and wildlife, and that no protected species are expected to occur in Stewart Creek.
2. Regarding the benthic invertebrate community in Stewart Creek; Exide states that arsenic detected in media is not part of the former operating plant's process and is derived from agricultural practices (cotton farming) from surrounding land. In addition, Exide maintains that elevated arsenic concentrations in sediment are not co-located with elevated lead and cadmium concentrations, suggesting that the origination sources are

not the same. If the elevated concentrations of arsenic in Stewart Creek sediment were derived from the historic agricultural uses in the area, then elevated concentrations should also be seen in area soils. In a recent Affected Property Assessment Report (Cook-Joyce, 2014) for the ~26-acre Partial Response Action Area 1 (PRAA 1) within the Grand Park property, a focused investigation of the surface soils was conducted to assess the presence of chemicals of concern. PRAA 1 is currently a wheat field that has been used for farming and ranching since the 1940s. Of the 258 total surface soil samples collected at PRAA 1, only 3 samples were above the TCEQ plant benchmark of 18 mg/Kg arsenic and the vast majority of these samples were below the Exide site-background soil concentration of 15.9 mg/Kg. A 95% UCL value of 10.3 mg/Kg arsenic was also calculated from the initial 236 samples (Cook-Joyce, 2014). This study suggests that elevated arsenic concentrations in soil may not be associated with land known to be used for agricultural purposes and that area soils transported into Stewart Creek may not serve as a source medium. However, additional studies are needed to determine the arsenic source(s). To better assess the potential source of the elevated downstream concentrations, it is suggested that a more definitive upstream (of the former operating plant) sampling of Stewart Creek sediment be conducted. To date, only 10 upstream samples have been collected and only 1 of these exceeded the ecological protective concentration level of 21.4 mg/Kg arsenic. In addition, sediment arsenic data is lacking for tributaries to Stewart Creek. If these tributaries were to be sampled and if it was determined that they also contain elevated arsenic concentrations, it could be more compelling evidence that the source is agricultural-related. Regardless, since, according to previous comments for the non-SLERA portion of the APAR, arsenic is considered a site COC, sediment concentrations that exceed the benthic PCL of 21.4 mg/kg will need to be addressed.

3. There remain some data gaps that should be discussed in the SLERA portion of the Revised APAR. These include: 1) no arsenic data for surface water or sediment from the on-site portions of Stewart Creek and the North Tributary, 2) no significant selenium data for surface water or sediment from any of the exposure areas, and 3) no antimony data for Stewart Creek or the North Tributary (this was a COC for the on-site Terrestrial Evaluation SLERA).
4. Regarding off-site Stewart Creek investigations, a report entitled *Interim Action Report Slag and Battery Case Fragment Removal and Disposal*, dated August 2014 detailing interim removal actions for slag and battery chips and levels of contamination in soils and sediments in Stewart Creek was received subsequent to the APAR and will be reviewed separately.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

September 12, 2013

VCP-CA Section, Team 1
Attn: Gary Beyer, MC 127
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

RE: Comments on Exide Technologies' Affected Property Assessment Report
EPA ID NO. TXD006451090 / DOCKET NO. RCRA-06-2012-0966

Dear Mr. Beyer:

Please find enclosed the U.S. Environmental Protection Agency's (EPA's) comments on the Affected Property Assessment Report (APAR), submitted by Exide Technologies (Exide) on July 10, 2013, pursuant to the Administrative Order on Consent (AOC) issued under Section 3013(a) of the Resource Conservation and Recovery Act.

Based on the EPA's review, the current APAR does not meet the objectives of the AOC; therefore, EPA will require Exide to submit a revised APAR. As discussed, TCEQ will formerly respond to Exide sharing our unified (EPA's and TCEQ's) concerns/comments regarding the content of the APAR. Please copy me on that correspondence at:

H. Troy Stuckey, Ph.D., Chief
RCRA Corrective Action and Compliance Inspection Section
U.S. Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733
ATTN: Paul James / 6EN-HC

Please feel free to call or email any questions to Paul James of my staff at (214) 665-6445, or james.paul@epa.gov.

Sincerely,

A handwritten signature in black ink that reads "H. Troy Stuckey".

H. Troy Stuckey, Ph.D., Chief
Corrective Action and
Compliance Inspection Section

Enclosures

cc: Sam Barrett - sam.barrett@tceq.texas.gov
Bill Shafford - bill.shafford@tceq.texas.gov

R&R
RUSSELL & RODRIGUEZ, L.L.P.
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July 18, 2014

RECEIVED

JUL 22 2014

COOK-JOYCE, INC.

Via Certified U.S. Mail, Return Receipt Requested

Mr. Richard Hyde, P.E. – CMRRR No. 7013 1090 0002 1772 6475
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78753

Sunita Singhvi, Chief – CMRRR No. 7013 1090 0002 1772 6505
Compliance and Enforcement Section (6EN-HE)
Compliance Assurance and Enforcement Division
United States Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733
Attn: Paul James

Re: City of Frisco Comments; May 22, 2012 Exide Technologies Revised Affected Property Assessment Report; Former Frisco Recycling Center;
TCEQ Agreed Order Docket No. 2011-1712-IHW-E; IHW Permit No. HW-50206
TCEQ SWR No. 30516; Customer No. CN600129779; Regulated Entity No. RN100218643;
EPA ID No. TXD006451090; EPA Administrative Order on Consent RCRA 06-2012-0966

Dear Mr. Hyde and Ms. Singhvi:

The City of Frisco is in the process of reviewing the revised APAR for Exide's former operating facility (FOF) in Frisco. This submittal is the City's review of the groundwater related portions of the revised APAR. The City will also be providing comments on the rest of the revised APAR in the near future.

Given Exide's continuing position, as expressed in the revised APAR, that there is no significant groundwater contamination problem at the FOF, the City expedited its review of the groundwater portions of the revised APAR. Exide originally asserted that there is only Class 3 groundwater at the FOF site. That assertion was not based on actual data, but a regulatory interpretation argument. Following a review of all available site groundwater data TCEQ rejected Exide's argument and determined that Class 2 groundwater is present at the site. TCEQ directed Exide to base the APAR on Class 2 groundwater regulations. It appears Exide has now

Attachment B

Mr. Richard Hyde
Ms. Sunita Singhvi
July 18, 2014
Page 2 of 2

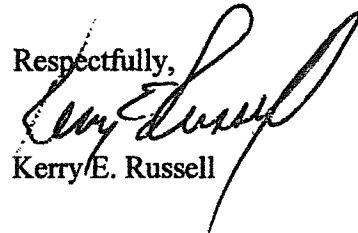
abandoned its earlier legal argument and is now asserting a new argument that all of the near surface groundwater contamination is not groundwater contamination, but "perched water" contamination. As clearly demonstrated in the attached analysis by the City's technical consultants, Exide's new assertion is supported by neither the facts nor the law.

There is only one upper groundwater bearing unit at the Exide FOF site. It extends from the surface to the lower aquiclude. The groundwater is Class 2 and it is contaminated with Exide wastes.

The real world bottom line to this situation is that Stewart Creek has received, and continues to receive, contaminated groundwater from Exide's FOF. This is happening even though Exide is currently removing large volumes of contaminated surface and groundwater for offsite treatment and disposal. Remediation of the Exide FOF must be based on eliminating this source of Stewart Creek contamination now and in the future.

If you, or your staff, have any questions regarding this submittal, please do not hesitate to call.

Respectfully,



Kerry E. Russell

Cc: Mr. Gary Beyer
Mr. Bill Shafford
TCEQ Regional Office
Mr. Mack Borchardt
✓ Mr. Wade Wheatley
Ms. Rusty Simpson
Mr. Bruce Cole
Mr. Matthew Love
Ms. Aileen Hooks

15 July 2014

PRIVILEGED AND CONFIDENTIAL

Mr. Kerry Russell
Russell & Rodriguez LLP
1633 Williams Drive
Building 2, Suite 200
Georgetown, Texas 78628

Re: Comments on Groundwater Classification and Assessment presented in May 2014
*Revised Affected Property Assessment Report, for Exide Technologies Former
Operating Plant, Frisco, Texas*

Dear Mr. Russell:

Cook-Joyce, Inc. (CJI) has prepared this letter to partially document our comments on *Revised Affected Property Assessment Report (APAR), Exide Frisco Recycling Center, 7471 South 5th Street, Frisco, Texas*, Golder Associates Inc., dated May 2014 (the revised Former Operating Plant APAR). Specifically, our comments are focused on groundwater classification and assessment at the Exide Technologies, Inc. (Exide's) Former Operating Plant (FOP).

Our comments have been prepared to address your concern that statements in the FOP APAR might allow a future trustee controlling the Site to revert to Protective Concentration Levels (PCLs) appropriate for Class 3 groundwater. In general, those statements indicate Exide maintains that the uppermost groundwater bearing unit (GWBU) at the FOP is a Class 3 groundwater resource, but that it will consider it Class 2 only for the purposes of this APAR.

A specific example of that type of statement is found in Section 2.5 (page 2-4) of the revised FOP APAR. In that section Exide states, "comments provided by the TCEQ and EPA (TCEQ, 2013e; EPA, 2013) on the July 9, 2013 APAR revisited the earlier TCEQ concurrence regarding groundwater classification and questioned whether a Class 3 groundwater designation was appropriate. Although Exide believes a Class 3 groundwater designation is appropriate, Exide [h]as agreed to apply Class 2 criteria for this APAR."

Similar statements are found in the revised FOP APAR on page 5-1 and page 26 of Table 1C. In addition, page viii of the Executive Summary references Exide's qualification to the Class 2 designation.

Such statements misrepresent the technical data and the regulatory agencies positions.

GROUNDWATER CLASSIFICATION

CJI and Apex TITAN, Inc. (Apex) agree with your conclusion that, based on currently available information, the uppermost GWBU at the FOP is clearly a Class 2 resource. The City of Frisco ("City") and its technical consultants (CJI and Southwest Geoscience¹) jointly prepared a report

¹ Southwest Geoscience is now Apex TITAN, Inc.





documenting why the uppermost GWBU at the FOP is a Class 2 resource. That 12 September 2013 document, *Groundwater Classification – Former Exide Technologies Facility, Frisco, Texas* (“Groundwater Classification Memo”), is provided as Attachment 1 to this letter. It was prepared in response to the initial APAR submitted for the FOP (initial FOP APAR)². The Groundwater Classification Memo documents that:

- 1) Based on groundwater yield the uppermost GWBU at the FOP meets the criteria for Class 2 groundwater.
- 2) The uppermost GWBU is heterogeneous, continuously saturated at the FOP, and consists of:
 - a. Unconsolidated clays and silty clays;
 - b. More transmissive silts, sands, and gravels (collectively “alluvial deposits”) which are more extensive than had been presented by Exide; and
 - c. Fill material consisting of reworked native soils and waste (slag, battery chips, municipal solid waste, and potentially other types of debris). This fill material is found in:
 - i. Filled, former stream channels of Stewart Creek and the North Tributary;
 - ii. Areas that were filled to regulate the grade of the plant; and
 - iii. In the landfill areas (the North Disposal Area and the Slag Landfill) that are located immediately to the north of the FOP.
- 3) Monitoring wells at the FOP were insufficiently developed (which may have reduced the groundwater production from some wells).
- 4) Incorrect saturated thicknesses were used when evaluating slug test data from the FOP.
- 5) The regulations at 30 TAC §350.52 appear to preclude downgrading Class 2 groundwater to Class 3.

In the Texas Commission on Environmental Quality (TCEQ’s) 8 October 2013 letter regarding the initial FOP APAR³, the TCEQ and the United States Environmental Protection Agency (EPA) agreed with the City’s conclusion that the uppermost GWBU at the FOP is a Class 2 resource. The TCEQ’s comment letter is provided as Attachment 2 to this document.

Based on the written statements in the TCEQ’s October 2013 letter, it appears clear that Exide has misstated the TCEQ’s position in the revised FOP APAR. The TCEQ did not “question

² *Affected Property Assessment Report, Former Operating Plant, Frisco Recycling Center, Frisco, Collin County, Texas (Agreed Order Docket No. 2011-1712-IHW-E)*, by Pastor, Behling & Wheeler, LLC, dated 9 July 2013.

³ Letter from Mr. Gary Beyer (TCEQ) to Mr. Matt Love (Exide), *Comments to the Affected Property Assessment Report (APAR) and the Tier 2 Screening Level Ecological Risk Assessment (SLERA) for the Former Operating Plant, dated July 9, 2013, Request for a Revised APAR, Exide Recycling Facility, 7471 5th Street, Frisco, TX 75034-5047*, dated 8 October 2013.





whether a Class 3 groundwater designation was appropriate". In fact, the TCEQ's letter specifically states that, "The available well testing data provided indicates that the GWBU is Class 2... the appropriate GWBU classification is Class 2."

If a future Exide property trustee decides to reclassify the groundwater in the future, a substantial amount of additional study and data will be required. No such material was submitted with the revised FOP APAR.

EXIDE GROUNDWATER ASSESSMENT

CJL and Apex reviewed the groundwater classification discussion in the revised FOP APAR in the context of an overall review of that document. Although that overall review is not complete, CJL and Apex have reached several conclusions regarding the groundwater assessment presented in the revised FOP APAR. The following presents a summary of the groundwater investigation findings to date and Exide's conclusions based on those findings:

Exide Assertions Regarding FOP Groundwater

- 1) Groundwater in the vicinity of the FOP has been analyzed for two metals: lead and cadmium. Concentrations of both metals above their respective PCLs have been reported in three shallow wells and one deeper well. Exide has asserted that the contaminated groundwater reported in shallow wells is "perched water" that is separated from the upper GWBU by "4-6 feet of fine-grained soils". The "perched water" is found in a layer of fill material that overlies the "fine-grained soils". Exide supports this assertion based on groundwater elevations from one paired set of wells (one shallow, one deeper) and from a comparison of water quality parameters. Due to the asserted separation of those two zones Exide now takes the position that the contaminated perched groundwater is not subject to regulatory classification requirements (page 5-7 of revised FOP APAR).
- 2) Exide also asserts that, if surface water contributions are reduced or eliminated, the French Drain will dewater the "perched zone". This assertion is based on changes in groundwater elevations over time in the paired set of wells (MW-32 and MW-46).
- 3) Groundwater from one well (MW-27) has been analyzed for organics (Total Petroleum Hydrocarbons [TPH] and Polycyclic Aromatic Hydrocarbons [PAHs]) to assess current impacts from a former diesel fuel release. None of the organic contaminant concentrations reported in that sample exceed critical PCLs.
- 4) Exide asserts that the former filled stream channels, utility cuts, and other filled areas beneath the FOP do not serve as preferential pathways due to the absence of lead and cadmium contamination in FOP groundwater.

Exide Assertions Regarding Groundwater at Waste Management Areas (Class 2 Landfill, Slag Landfill, North Disposal Area, and South Disposal Area)

- 1) Groundwater in the vicinity of the Class 2 landfill has been analyzed for four metals: arsenic, lead, cadmium, and selenium. Concentrations of selenium above the critical PCL have been reported in one well (LMW-9) located to the east of the Class 2 landfill.





- 2) Groundwater in the vicinity of the Slag Landfill, the North Disposal Area (NDA), and the South Disposal Area (SDA) has been analyzed for total concentrations of two metals (cadmium and lead). In addition, groundwater from well B4R (adjacent to the SDA) was analyzed for dissolved concentrations of arsenic and selenium. A lead concentration above the critical PCL was reported in well B4R (located west of the SDA) in a 2012 sample, but not in samples from 2013 or 2014.

Exide Assertions Regarding Groundwater in Other Areas

- 1) Groundwater in other areas of the site has been analyzed for four metals: arsenic, lead, cadmium, and selenium. In addition, groundwater from one well (MW-43) in the former firefighter training area, was analyzed for some organic constituents. None of the reported concentrations for the contaminants of concern (COCs) in those locations exceeded critical PCLs.

CJI/APEX REVIEW OF EXIDE GROUNDWATER ASSESSMENT ASSERTIONS

CJI and Apex disagree with several of Exide's assertions regarding its groundwater assessment. The assertions we believe are in error include:

- That the "perched water" and the upper GWBU are hydraulically separated;
- That the French Drain will dewater the "perched zone"; and
- That the groundwater assessment is complete.

The bases for our conclusions are presented below.

Separation of Perched Water from Upper GWBU

CJI and Apex do not believe that Exide has demonstrated that the upper GWBU is separated from the contaminated perched groundwater. Such a demonstration is not possible because there is no such separation. Per TCEQ regulatory guidance (RG)⁴, several lines of evidence can be used to determine if two water bearing zones are hydraulically interconnected or not. The primary method is through detailed site stratigraphy; secondary methods include hydraulic methods such as pumping tests and water chemistry methods.

Exide has not demonstrated that the "4-6 feet of fine-grained soils" that it claims separates the "perched water" from the upper GWBU is capable of preventing communication between the contaminated groundwater and the upper GWBU. For example, based on available boring log information the alleged separating stratum is not consistently present across the FOP. One area where the "4-6 feet of fine-grained soils" are not present is the filled, former channel of Stewart Creek in which MW-30 is installed. In addition, the separating layer of fine-grained soils is clearly not present in the adjacent North Disposal Area. Shallow groundwater has been reported in the NDA and the NDA is not lined, meaning that the waste fill there is in direct contact with the adjacent, saturated native soils and in contact with fill in the former Stewart Creek channel.

⁴ *Groundwater Classification*, RG-366/TRRP-8, TCEQ, revised March 2010.





Also, the "4-6 feet of fine-grained soils" are either mostly or entirely absent under the Battery Receiving/Storage Building (BRB). The BRB is the location of a documented hazardous waste release. In addition to the absence of a confining layer, an Exide constructed conduit exists between the upper fill zone and the GWBU. The sand pack for MW-31 (located inside the BRB) extends across the entire silty clay stratum and up into the layer of waste fill which overlies the silty clay in that area. In other words, even if the upper fill zone is separated from the upper GWBU, the well bore and sand pack at MW-31 represent a current and future preferential pathway.

If Exide truly believed that the "4-6 feet of fine-grained soils" represents a confining layer, then its investigation procedures should have included cemented surface casings to limit the preferential pathway potential for monitoring wells installed through that layer. Because that procedure has not been utilized by any of the Exide consultants that have worked at the Site in the past, if the "4-6 feet of fine-grained soils" was truly present then every monitoring well or boring that penetrates the purported confining layer represents a potential preferential pathway for downward (or upward) migration of water along the borehole. This demonstrates interconnectivity from the saturated near surface zones to the lower confining layer of the Class 2 GWBU.

Site utilities also represent preferential pathways and interconnections between the upper fill zone where the alleged "perched" groundwater is located and the upper GWBU. The sanitary sewer line serving the FOP is 14 feet deep and its path parallels the FOP floodwall. A connection to that 14' deep sewer line crosses the west side of the Raw Material Storage Area (RMSA). Two of the three shallow, contaminated wells are located in the RMSA. Although the depth of that connecting line is unknown, it represents a preferential pathway to the main sewer line regardless of its depth.

In addition to the sanitary sewer, facility construction plans included with Exide's 2010 RCRA permit renewal application indicate there is also a 14-foot deep storm sewer located at the Site. This storm sewer also represents a preferential pathway.

Finally, the "oil recovery sump" and "interceptor trench" also represent penetrating features that provide preferential pathways. The interceptor trench was installed by Lake Engineering in the mid to late 1980s. The trench's purpose was to capture diesel fuel released from a 2 foot deep piping trench. The trench is assumed to be between 9 and 11 feet deep, and was designed to drain to the 11-foot deep "oil recovery sump", where diesel fuel and water were recovered. Both of these features are located between the Raw Material Storage Building (RMSB) and the facility floodwall. Exide has ignored the fact that a release from a depth of 2 feet bgs would not have reached 10 feet bgs if the separating layer asserted by Exide was present in that area.

Many of these features (wells, borings, utilities, trench/sump, and stream channels) are represented in the cross sections attached to this letter.

Based on the information provided above, it appears clear to the City's technical consultants that the "perched", contaminated groundwater is hydraulically interconnected with the underlying GWBU. In fact both comprise the upper GBWU. It is also clear that the contamination in the upper GWBU may reach Stewart Creek if not addressed by Exide. The City's proposed cap and slurry wall would prevent such an occurrence.

French Drain





Based on documentation submitted with the original and revised FOP APARs, the French Drain was installed to prevent contaminated groundwater from penetrating the flood wall and further impacting media adjacent to and in Stewart Creek. In the revised FOP APAR Exide documents that the French Drain (when operating) appears to limit groundwater discharges through the floodwall to the Creek. However, Exide was silent on the remainder of TCEQ's French Drain information request: "Additional information is needed on the performance of the system, water level maps to depict groundwater flow into the system, gallons of water intercepted and treated, concentrations of contaminants in the water, and, most importantly, if the discharges to Stewart Creek have ceased" (page 10 of TCEQ's 8 October 2013 comment letter). Documents submitted to the City by Exide indicate that significant volumes of contaminated water are being intercepted by the French Drain and are being shipped offsite for disposal.

Although not provided in the revised APAR, some of that information is publically available in Exide's February 2014 wastewater permit application⁵ to the North Texas Municipal Water District. A digital copy of that permit application is provided as Attachment 3 to this letter.

Based on the February 2014 permit application, the average daily flow of water from the French Drain is 1,000 gallons per day. Data from two samples of water from the French Drain were also provided in that application and are summarized in the following table:

Sample		Concentration in milligrams per Liter (mg/L)							
ID	Date	TDS	Sulfate	Antimony	Arsenic	Cadmium	Lead	Selenium	Tin
FD122013-01/02	12/20/13	1980	1230	<0.12	<0.025	0.0052	0.59	<0.05	<0.12
FD010314-01/02	1/3/14	1270	745	0.059	0.032	0.037	0.75	0.034	<0.025
Critical Groundwater PCLs/Action Levels¹		None	60 ²	0.006	0.01	0.005	0.015	0.05	15

Note: Detections presented in bold font, PCL exceedances are highlighted.

1) Groundwater PCLs are provided in this table. It should be recognized that groundwater PCLs may not be the critical PCL for this water due to its proximity to ecological receptors in Stewart Creek.

2) This is not a critical groundwater PCL. It represents a surface water quality standard for Stewart Creek.

Although these data do not appear to be TRRP-compliant, they are of sufficient quality for Exide to use them to characterize the flow from the French Drain for the purpose of the wastewater permit application. The February 2014 wastewater permit application also contains analytical data of leachate samples from the Class 2 landfill. Both of those samples indicate the leachate is characteristically hazardous for arsenic.

From the analytical data summary above, the groundwater being recovered by the French Drain is obviously contaminated. In addition, previous sample data collected by regulatory agencies have documented that groundwater from the plant side of the flood wall has contaminated soil located outside of the flood wall. However, it is not clear that current contaminated groundwater discharges to Stewart Creek have been completely intercepted by the French Drain.

The French Drain is approximately 4 feet deep and extends 6 to 8 inches deeper than the base of the flood wall footing. The base of the footing is above the elevation of groundwater in the

⁵ Facility Permit Renewal Frisco, Texas, North Texas Municipal Water District, Exide Technologies, 1300 Deerfield Parkway, Milton, Georgia 30004, by RPS, dated February 2014.





adjacent wells. The base of the trench in which the French Drain is installed is lined with 40 mil high-density polyethylene (HDPE) plastic sheeting. Based on this liner, it is unlikely that the French Drain's zone of influence would extend directly beneath the drain. Therefore, contaminated groundwater in the upper fill zone could flow under the floodwall/French Drain and enter Stewart Creek. The EPA observed and documented flow under the floodwall during its 2010 Corrective Action Inspection. This information again supports the fact that the contaminated "perched water" and the upper GBWU are one and the same.

Finally, it should be noted that the French Drain was not installed along the floodwall in the BRB area. The floodwall forms the southwestern and western sidewalls of this building. As previously mentioned, the BRB is the location of a documented hazardous waste release and the area under the BRB is partially filled with slag. Due to its absence, the French Drain obviously cannot control groundwater flow from that area into Stewart Creek. Groundwater flow either through or under the BRB floodwall was observed by the Texas Natural Resource Conservation Commission (TNRCC – now TCEQ) in the mid 1990s⁶.

Based on the information provided above, it appears clear to the City's technical consultants that the French Drain is recovering contaminated groundwater, but due to its shallow depth it cannot prevent discharges of contaminated groundwater to Stewart Creek. In addition, groundwater from beneath the BRB can bypass the French Drain completely.

Site Constituents of Concern (COCs) Evaluated in Groundwater

It is the opinion of the City's technical consultants that the groundwater assessment performed at the FOP did not include all of the applicable COCs. Several metals should be added to the groundwater COC list because untreated slag is in direct contact with groundwater beneath the FOP. In addition, the groundwater should be assessed for volatile organic compounds (VOCs). Specifically:

Arsenic – Arsenic is clearly a COC at the Site that should have been evaluated in groundwater at the FOP. Multiple test results spanning several years indicate that the leachate from the Class 2 landfill is characteristically hazardous for arsenic. Arsenic is a Stewart Creek contaminant, both in sediment and in as-generated wastes (slag) found in the creek. Arsenic apparently related to deposition of airborne particulate or waste management practices is located in surface soil in multiple areas of the FOP and surrounding area. Arsenic concentrations in groundwater should be evaluated to determine if that COC currently exceeds critical PCLs. In addition, due to arsenic's increased solubility in reducing conditions (such as those typically found under capped landfills), an arsenic baseline in groundwater should be developed prior to the FOP being capped.

Antimony and Selenium – The groundwater assessment is incomplete for antimony and selenium. Antimony is a potential contaminant based on its presence in Site soils and in the battery feed stock recycled at the Site. Selenium is present in soil, groundwater, and landfill leachate in at the Site. Neither was evaluated in groundwater at the FOP.

Solvents – Solvent waste (specifically tetrachloroethene) was generated at the Site based on its Notice of Registration (NOR). Exide admits the solvents were used in the maintenance

⁶ "Page 1 of Table 1D in the revised FOP APAR, "... as evidenced by seepage from underneath the battery storage area along Stewart Creek".





building. The revised FOP APAR documents a previously unreported trench drain located in or under the maintenance building. Historically, gasoline and fuel oil tanks were located near the maintenance building. Based on this information the City's technical consultants have concluded that, at a minimum, groundwater in the vicinity of the maintenance building should be evaluated for VOCs.

The City's technical consultants believe that establishing a baseline for these COCs in groundwater will aid in the determination of appropriate control, recovery, and/or in-situ treatment methods and materials at the FOP.

Synthetic Precipitation Leaching Procedure (SPLP) Data

SPLP data presented in the revised FOP APAR suggests that lead and cadmium will leach at concentrations above critical PCLs when in moderately acidic conditions. This may be why there was a groundwater lead exceedance in MW-46 – one of the two most acidic pH measurements obtained at the Site came from that monitoring well. The City's technical consultants suggest that the FOP's groundwater chemistry be more thoroughly evaluated, particularly in the area adjacent to and downgradient from the brick lined trenches, acid recovery pits, and other processes involving acid collection and treatment in the battery breaker building and the wastewater treatment plant. This information will also allow the establishment of a Site baseline and aid in the eventual design of control, recovery, and/or in-situ treatment methods and materials at the FOP.

Data Quality

CJL and Apex have not conducted an exhaustive review of the Data Usability Summaries found in the revised FOP APAR. However, it is important to note that Exide rejected its own data due to improper field procedures. Specifically, Exide rejected its January 2014 data from MW-32, MW-33, MW-44, and MW-46 due to incorrect field filtering. The field forms are unclear regarding which samples were field filtered prior to sample collection.

The City's technical consultants and TCEQ have both commented on Exide's insufficient well development procedures. It does not appear that Exide's new consultant, Golder Associates, Inc., has revised those well development procedures to address those comments.





CLOSING

A second revision to this APAR should be required because impacts in soil have not been delineated. Exide has acknowledged this in the revised APAR. That revision will allow Exide an opportunity to complete the groundwater assessment at the FOP as well.

We appreciate the opportunity to offer these comments and suggestions. Please contact the undersigned with questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'Wade M. Wheatley', with a large, stylized flourish at the end.

Wade M. Wheatley, P.E.

RV:rv
Attachments



Summary of Elevations and Soil Observed Above Bedrock in Wells Near Planned Path of Slurry Wall
Former Exide Facility, Frisco, Texas

ID	Location	Shale		Groundwater ¹		Coarse Grain or All Clay/Shale?
		Depth (ft) bgs	Elevation (ft amsl)	Depth (ft) bgs	Elevation (ft amsl)	
MW-42	North Trib-East	14.00	624.71	9.38	632.86	Gravelly Clayey Sand/Sandy Clay from 10-12'
B-7N	North Trib-East	18.00	619.02	15.05	630.55	ALL CLAY/SHALE
MW-21	North Trib-East	10.50	623.16	3.50	632.49	Gravelly Clay from 1-4'; 5.5'; Silty clay from 5.5-10'
B-9N	North Trib-Center	14.50	622.52	9.14	631.55	Sand from 7-9'
MW-41	North Trib-Center	16.25	622.89	11.38	630.79	Gravelly Clayey Sand/Sandy Clay from 10-13.5'
MW-22	North Trib-Center	12.30	620.99	4.21	632.68	Gravelly to silty clay 0-7.7'
B3/LMW-3	North Trib-Center	15.00	622.76	13.41	626.37	Clayey gravel 10-14'
MW-40	North Trib-Center	14.00	619.00	5.40	630.11	ALL CLAY/SHALE
MW-39	North Trib-West	19.50	617.76	10.41	629.29	Sandy Clay from 15-19.5'
MW-18	North Trib-West	14.50	617.34	4.25	628.75	Clayey sandy gravel from 4-6.5'
VCP-MW-4	North Trib-West	10.70	621.48	9.01	626.42	Gravelly Clay from 5.3-6.6'; Silty clay to clayey silt rest of soil column.
MW-37	Stewart Crk-West	8.50	612.70	8.11	612.84	ALL CLAY/SHALE
MW-16	Stewart Crk-West	19.00	608.93	12.07	616.81	Sandy silty gravelly clay from 14.5-16'
MW-16S	Stewart Crk-West	18.00	609.51	9.42	618.58	Clayey sandy gravel from 14-16'
MW-38	Stewart Crk-West	14.75	608.75	7.40	615.74	Gravelly Clay from 11-12.75'
MW-17	Stewart Crk-West	18.00	610.58	8.53	620.47	ALL CLAY/SHALE
B-5N	Stewart Crk-West	19.25	610.72	10.31	621.12	Clayey silty and gravel 10-15'
MW-31	Stewart Crk-West	22.00	615.17	10.87	625.84	Fill with chips/slag 0.9-8; Silty clay to clayey silt from 8-21'; gravelly clay 21-22'.
MW-14	Stewart Crk-West	17.00	612.89	6.20	624.81	Sandy gravelly clay from 4-10'
MW-46	Stewart Crk-West	17.50	612.39	5.21	625.77	Gravelly clay from 7.5-15'
MW-12	Stewart Crk-West	17.00	616.94	8.55	626.61	ALL CLAY/SHALE
MW-26	Stewart Crk-Center	13.00	615.34	5.80	626.13	Sandy, silty, and gravelly clay from 0-13'
MW-29	Stewart Crk-Center	11.40	617.99	6.62	626.89	Silty clay to clayey silt from 0-11.4'
MW-27	Stewart Crk-Center	13.40	616.49	4.90	628.52	Clay and silt dominant loams 0-13.4'
MW-44	Stewart Crk-East	13.50	620.83	9.21	628.29	Sandy clay from 5-9.5'; Gravelly Clay from 11-13.5'
P-2	Stewart Crk-East	18.50	624.32	16.40	627.15	ALL CLAY/SHALE
MW-20	Eagan Way-South	19.70	622.03	NA	NA	ALL CLAY/SHALE
MW-10	Eagan Way-Center	16.50	628.62	8.22	636.60	ALL CLAY/SHALE
MW-23	Eagan Way-Center	16.20	628.12	7.52	636.63	Clayey Silty to Gravelly, sandy clay 2.6-12.2'
MW-43	Eagan Way-North	17.00	628.87	14.93	630.52	Silty clay to clayey silt from 6-15'

Notes: 1 Groundwater elevations taken from January 2014 measurements.

